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With the Compliments of
J. Banart Davis.

THE SKULLS OF THE INHABITANTS OF THE CAROLINE ISLANDS.*

By one of those accidents which have led some ethnologists to imagine that the islands of the vast Pacific have actually been peopled, and which have been made to do service in the great system of "accidental philosophy", a number of crania of the natives of the Caroline Archipelago came into the hands of those zealous cultivators of science, the Dutch medical officers of Java. As none of the Europeans who have visited this Archipelago had taken the pains to collect the skulls of the inhabitants, and thus nothing was known of their cranial conformation, great interest must be attached to the first description of these curious objects—which description has now been made by a most competent observer, Professor J. Van der Hoeven, of Leyden, the author of similar histories of the skulls of many other races.

In the year 1858 Capt. D. Herderschee, of the Dutch ship *Amsterdam*, sailing from Hong Kong to Melbourne, at a distance of ninety German miles from the Pellen (Pelew?) Islands, met with a canoe containing twelve men and women. They were in great distress, famished and weak, so that they were almost reduced to skeletons, and were covered with vermin. Captain Herderschee took them on board his ship, and conveyed them to Batavia. Neither on shipboard, nor in this city, could their language be understood. With the exception of two, who had suffered the least, they were all sick when landed, and were sent to the Hospital. Three of these died immediately, and the rest soon afterwards; indeed, only one of the twelve appears to have escaped. As the language they spoke could not be comprehended, there was some doubt as to their origin.† It was, nevertheless, concluded by Capt.

* *Beschrijving van Schedels van Inboorlingen der Carolina-Eilanden*, door J. Van der Hoeven. 8vo, pp. 16, 2 pl. Amsterdam: 1865.

† Among the twelve islanders, some gave other names to the same objects, so that it is uncertain whether they were all derived from the same island.

Herderschee, who found them, and by others, that they were from the Island of Wolia, Olee, or Ouléa, which is in the Caroline Archipelago; and that they had wandered on the ocean for about one hundred days. There are many reasons to place confidence in this conclusion. Choris, speaking of "Kadon", the native of this island met with in Kotzebue's Voyage, and who had visited the Pelew Islands, tells us that they are bold navigators, and undertake great sea voyages, and that they sail annually to the Isle of Guaham, one of the Mariana group. Their peculiar kind of tattooing also, and their mode of distending the lobes of the ears by hoops of tortoise-shell passed through holes in them, exactly agree with the accounts given by voyagers of the Caroline Islanders.

By the diligence of Dr. C. Swaving, who has distinguished himself as a collector of crania, nine of the skulls of these islanders have been sent to Holland. Four of them were first of all placed in the hands of the late Professor Willem Vrolik, with a number of articles of dress and of ornaments, and the alphabet (vocabulary?) of their language. These are described in the Catalogue of the Vrolik Museum.* In consequence of the lamented death of Professor Vrolik, these skulls were reclaimed by Dr. Swaving, and presented, with four others, to the Anatomical Museum at Leyden, where a ninth, that of "Soejoer", is also placed.

Professor van der Hoeven's Memoir consists of a careful description of these skulls, together with measurements and numerous observations, both on the crania and other subjects. It is illustrated with a good wood-cut of the skull of "Taralipa", showing its form vertically, and two very neatly executed lithographic plates, giving a front and profile view of the same skull, and profiles of those of "Taraloni", and of that of the woman "Laepat", all half-size; and followed by a table of measurements, according to Professor van der Hoeven's method.

Of the crania entering into this description, seven are those of men, and two those of women.† The male skulls occupy the attention of the author first.

* *Musée Vrolik Catalogue de la Collection d'Anatomie*, etc., par J. L. Dussseau, 8vo., 1865, p. 120.

† By the kindness of the Leyden professor, the fine skull of "Erolimo", No. vi of his table, has passed into the collection of the writer, No. 1260. It is inscribed "Erolimo van het eiland Oolea, Carolinen-eilanden. Obiit 14 Dec. 1853. Swaving." It is the cranium of a man of probably forty years of age. The alveoli of some of the incisors of the right side, the inner tooth of the upper mandible, and both those of the lower, are entirely absorbed, presenting the appearance of those of Kanakas and Australians whose teeth have been punched out in early life, during certain ceremonies. But, in this skull, those of the two last upper molars on the left side are also totally

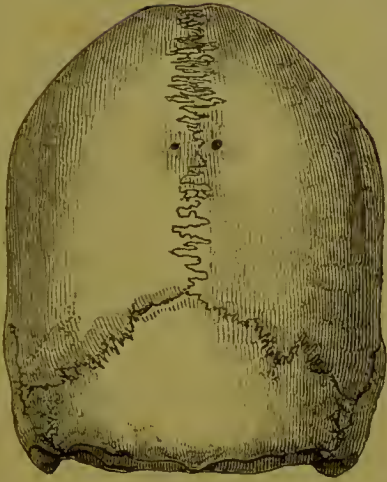


Fig. 1.

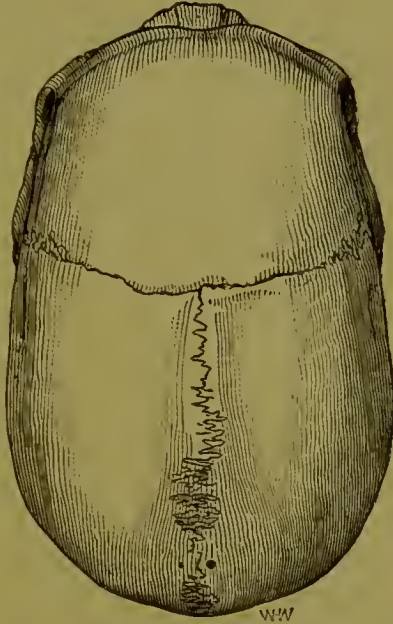


Fig. 2.



Fig. 3.

Figs. 1, 2, 3.—Skull of "Kilala," Apee, New Hebrides. No. 820. One-third size.

The Professor remarks, *in limine*, that all the skulls agree in having one oblong form ; they belong to a people which, in the terminology of Retzius, must be named *dolichocephalic*. This is pre-eminently the case ; and, upon such chief distinguishing feature of the whole series, some further remarks will be made in the sequel.

The statement of Dr. Van der Hoeven is, that the mean circumference of the skulls is 515 millimeters, equal to 20.3 inches English. This is greater than the circumference of the skulls of Javans, which is 499 mm. ; and, on the contrary, less than that of the skulls of German people, 528 mm., observed by the author. The mean circumference of the Caroline Islanders' skulls agrees with that of the Chinese skulls, which he had previously measured. It may be remarked, that Professor Van der Hoeven, throughout his memoir, compares the skulls described with those of Chinese.

The length of the erania varies from 171 mm. to 191 mm., the mean of the author being 182 mm., or 7.2 inches. In six Chinese skulls the average was 180 mm. The mean breadth between the parietals is 126 mm., or 5 inches. This, it should be observed, is a remarkably small transverse diameter in adult skulls. The author adds, that in six Chinese skulls he found the average breadth to be 137 mm., or more.

The arch of the calvarium, measured from the root of the nasal bones to the *anterior* edge of the *foramen magnum*, he makes to be, in the mean, 382 mm., or 15.1 inches, which is an unusually long arch. Of this mean measure, the greatest portion is absorbed by the parietals, a lesser by the frontal, about 14 mm. less, and the smallest by the occipital, about 18 mm. less than the frontal.

The height of the skull, in the mean, amounts to 142 or 143 mm., or 5.6 inches. In Chinese skulls the author found this measure to be 145 mm., but some of these were particularly high examples.

From such measurements it appears that the skulls are oblong, narrow and tolerably high.

The author next proceeds to a more minute description of the individual bones of the cranium of the men, into which we do not propose to enter at length. The frontal bone is moderately long, and the point of junction of the coronal and sagittal sutures is, in five of the skulls,

effaced from caries, and it is probable that the alveolus of the canine of this side of the jaw has likewise perished in the same way. The skull is remarkable for the complete ossification of much of the coronal suture, especially its middle portion, and also of the sagittal, which can be traced only at its posterior extremity. This extensive *synostosis* has scarcely interfered with the normal form of the cranium, hence was probably post-congenital. The right *foramen parietale* is still persistent, the left absent.

perpendicularly over the anterior edge of the occipital foramen ; in two skulls, only just before it. In all, the sagittal suture is longer than the frontal bone. Such also is commonly the case in German skulls, although there are examples in which the length of the frontal exceeds that of the parietals ; which, according to Professor Van der Hoeven's earlier observations, he says, appears contrariwise, to be the rule in Slavic and Tschudic skulls. The frontal is proportionally arched, most prominent in the middle,* and gently gliding to the sides, without plainly developed *tubera frontalia*. The *glabella* in most of the skulls stands out strongly. The *tubera parietalia* are placed in a backward position. The outer plate of the pterygoid processes of the sphenoid, is, in most of the skulls, very broad, and directed outwards. This conformation is strongly expressed in the skull of "Erolimo". The nasal bones are not flat, but form with one another a more or less acute angle ; they are narrow, and under the *glabella* appear somewhat less prominent than towards their lower extremities. In their connection with the frontal, they always ascend higher than the adjacent *processus nasales* of the superior maxillæ. The jugal arches do not project prominently outwards.† The teeth are sound, and Professor Van der Hoeven did not observe one affected with caries. This is not inconsistent with the remark made before on the teeth of "Erolimo", which, strictly speaking, do not exhibit indications of caries, although there remain obvious proofs of extensive caries of the alveoli ; still most likely the sequel of caries of the teeth.

Into the particular description of the skulls of the two *women* it is not proposed to enter here, as they present sexual peculiarities chiefly, if not wholly, and, as the author justly observes, it would be rash to conclude upon the sexual peculiarities of the women of the race from two examples merely. He mentions one anatomical anomaly, which occurs on both sides in one of the women's skulls, and on the right side in one of the seven skulls of men ; an anomaly which Hyrtl, in his *Lehrbuch der Anatomie des Menschen* (Prag, 1846, 8vo., S. 177), says is very rare. It consists in the prolongation of the outer plate of the *processus pterygoideus* of the sphenoid backwards at its base, and its consolidation with the spinous process of the great wing of the sphenoid bone. Above this junction there remains an oblong hole, situated immediately below the *foramen ovale*. The writer has long since observed this peculiarity in other skulls, and cannot consider it very rare.

* This peculiarity will obtain further attention hereafter.

† In the skull of "Soenjoer", the jugal process of the temporal bone is divided by a suture into an anterior and a posterior part. This suture is placed a little before the anterior edge of the articular cavity for the head of the lower maxilla.

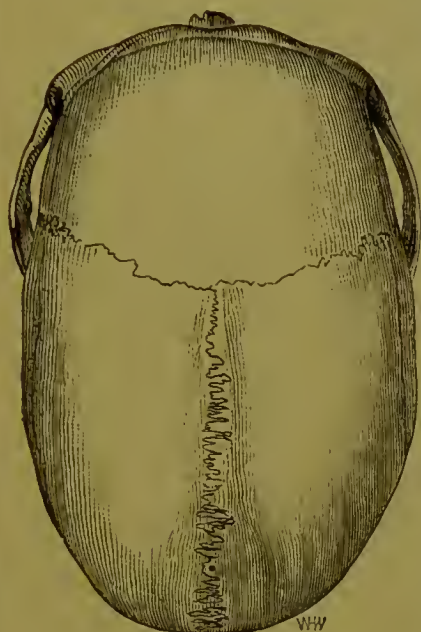


Fig. 1.

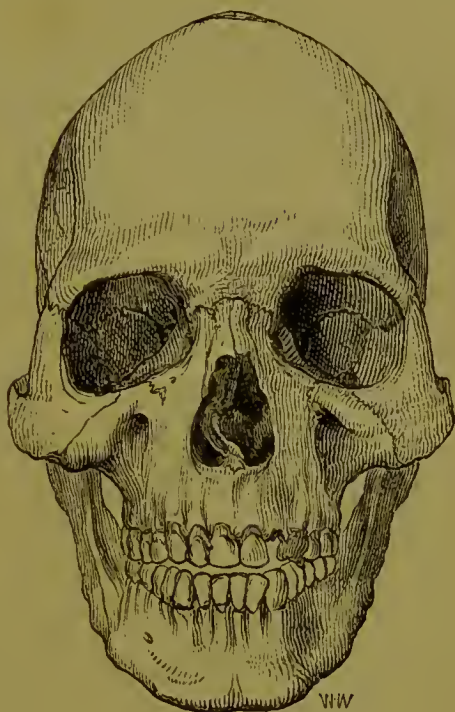


Fig. 2.

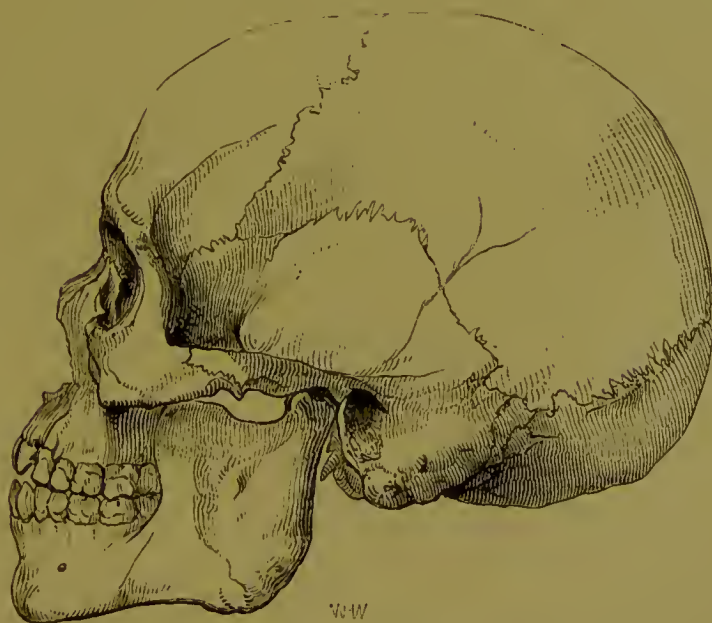


Fig. 3.

Figs. 1, 2, and 3.—Skull of "Biat," Lifu, Loyalty Islands. No. 816. One-third size.

The remaining portions of this excellent and instructive memoir are chiefly devoted to the elucidation of geographical points, arising out of the acquisition of these rare skulls. As previously remarked, the commander of the ship, Capt. Herderschec, considered these natives to come from the island of *Wolia*, but the reasons for this opinion are not given. There is no ground for regarding this island as new to geography. It is most likely that named by De Torris *Guliai*, and by others *Oelee*, or *Oellie*,* and would be the same from which "Kadou", who was met with by O. Von Kotzebue, was derived. It is situated in the western part of the great group of the Caroline Islands, in about 7° of N.L., and 144° E.L. The Caroline Islands, as laid down in our maps, extend over a vast space of the Western Pacific, and really consist of numerous distinct archipelagos, the natives and the productions of which probably differ very materially in the different groups. Of these, as well as of the various islands themselves, not a great deal seems to be known with much accuracy. Still, the islands were discovered long since, and often have been visited. Captain Freycinet, who gives an extended and interesting historical account of the communications of different navigators with the Carolines, attributes to the Portuguese, Diego da Rocha, in 1526, the honour of opening the way. The Spaniards had been long established in the Mariana Islands to the north, which are still a dependency of the Spanish government of the Philippines, when, about 1686, Lascano fell in with the Island of Farroilep, and named it Carolina, in honour of Charles II of Spain. Ten years afterwards a canoe containing twenty-nine persons, men and women, from the Islands of Lamoursek, was driven to the Island of Samar, one of the Philippines. This event led to other expeditions of discovery. The description of the adventures of Captain Wilson, of the English ship *Antelope*, which was wrecked, in 1783, on the Islands of Palaos, or the Pelew Islands, affords the fullest and most authentic account of these isles. He remained three months on shore with his companions, built a new vessel, and sailed to China.† An eastern archipelago, the Radak Islands, was visited by Otto von Kotzebue, in 1817; indeed, the principal object of Kotzebue's expedition was to make researches in the Marshal Islands, an archipelago somewhat to the east of the Carolines. Choris was the artist to this expedition, hence his figure of "Kadou", regarded as the most authentic portrait of a Caroline Islander known. In 1819, Freycinet, in the voyage of the "*Uranie*" and "*Physicienne*", touched at the Carolines, which led

* "Ile dont le nom s'écrit aussi *Guliyay*, *Ulië*, *Olië*, *Uli'a*, *Uli'é*, et même *Vlee*." Freycinet, *Voyage de l'Uranie*, ii, 81.

† *Account of the Pelew Islands*, by G. Keate. 4to.

him to devote so much space to the history of discovery in these islands, in his great work on the voyage.*

The people inhabiting these numerous isles of the Western Pacific are still very imperfectly known, notwithstanding the visits of many navigators. Professor Van der Hoeven tells us that accounts of them generally agree in the following particulars:—They are of middle stature, not all of the same colour, even in the same island there are differences of tint, the darkest coloured are those of lower stature. Their teeth are white, not filed or dyed black like those of Malays. A defined national physiognomy cannot be detected in their features. They go almost wholly naked, but adorn themselves with dark blue tattooed stripes on their arms and legs, placed lengthwise. Moreover the ears are bored, and the lobes are sometimes inordinately stretched by the objects worn in them for ornaments. In these holes they wear rolls or rings of tortoise-shell or bone, and the women decorations of flowers. We refrain from following the author into an account of the manners, weapons, etc., of the islanders. With these relations respecting the Caroline Islanders, the observations of Dr. Swaving on those whose skulls were sent to Leyden, fully agree, so that there cannot be a doubt of their being really Caroline Islanders. From this gentleman's description we may quote a few statements. Their *hair* was exceedingly *black and smooth*, with the exception of the woman "Laepat", whose hair was rather crisp. Some of the men had whiskers and moustaches. The woman "Natioli" appeared to have had the hair eradicated from the *labia*, which were tattooed, an operation peculiar to her. The eye-lashes were thick, and the nose more pointed than in the Malays of Batavia. The eyes were black, but not large. The colour of the skin, which was covered with a scaly eruption, was a deep brown. One man wore a necklace. With the exception of two men, they all had their skins tattooed, although in different fashions. Save in the case of "Natioli", this ornamentation was limited to the extremities. They had only a cincture round the loins for dress. From this girdle hung down between the thighs a tissue formed of bark.† Pritchard gives a lengthened account of the Caroline Islanders, and alludes to the ridiculous nickname bestowed upon them by M. Lesson, of *Pelagian Mongols*.‡ As far as these crania of Caroline Islands are concerned, the epithet Mongolian, when applied to them, would be the most unfortunate and inapposite that could be hit upon in the whole vocabulary of hypothetical ethnography.

Skulls of Caroline Islanders were previously unknown, but figures of

* *Voy. autour du Monde de l'Uranie et la Physicienne*, 1817-1820, par M. Louis de Freycinet. 4to et fol. 1829.

† *Musée Vrolik*, p. 118.

‡ *Physical Researches*, v, 179.

the natives themselves appear in many works. The best probably, as already mentioned, is that of "Kadou", in the *Voyage Pittoresque* of Chloris, part v, pl. xvii. In the *Atlas Historique* of Freycinet's *Voyage de l'Uranie*, there is a fine plate of a Caroline Island woman and man, of the Island of Guam, pl. 53. These are of a brownish tawny colour, and much tattooed on the legs. The figures, as Dr. Van der Hoeven justly remarks, remind one so much of drawings of an European Academy of Fine Arts, that it is difficult to regard them as authentic. The drawings are from the hands of M. Jacques E. V. Arago, the artist of the expedition, who furnished similar figures to his own work, *Promenade autour du Monde*. Plate 54 of the *Voyage* represents two men dancing, and plate 55 a group of fourteen Caroline Islanders engaged in a dance. These and other fine plates of this *Atlas* are very beautiful, but have such an air of European *beau idéal* as to make one hesitate about their fidelity, which nevertheless may be real. In the last voyage of the *Astrolabe*, under the command of Admiral Dumont D'Urville, Dr. Dumoutier obtained moulds from three Caroline Islanders, belonging to the group of Lougonor or Nougonor. They were taken from young men of twenty to twenty-five years of age. Casts have been obtained from these moulds, and are deposited in the *Galerie Anthropologique*, at the *Jardin des Plantes*. The authenticity of these is beyond question, and, being of the size of life, they are both perfectly reliable and of very great value. Fine lithographs of these busts taken from photographs, are given in Dumoutier's *Atlas (Anthropologie. Voy. au Pol Sud)*, and M. Émile Blanchard, in the volume entitled *Texte de l'Anthropologie*, comments upon them. In one passage M. Blanchard remarks that the Caroline Islands are so multiplied over so considerable an extent from west to east, and the descriptions of voyagers are so variable, according as they apply to the inhabitants of one isle or another, that we believe the natives of the archipelago are far from all being identical.*

* A sentence of M. Blanchard's work deserves to be quoted at length. He says:—"On sent quel vaste champ de recherches reste aux explorateurs; combien il serait à désirer que ceux qui visiteront les îles de l'Océanie s'attachassent à recueillir un grand nombre d'empreintes du visage de ces insulaires, et de portraits pris au daguerréotype; combien il serait utile aussi que l'on s'attachât à se procurer des crânes et même d'autres parties du squelette en quantité considérable! C'est seulement avec de tels éléments que la science anthropologique pourra progresser. On le voit à chaque pas, rien de contradictoire comme les impressions des voyageurs. Les uns considérant des hommes qui se ressemblent beaucoup en réalité, les déclarent absolument de même race, absolument comme une personne peu exercée en voyant plusieurs espèces voisines d'animaux, et ne sachant pas saisir les différences, n'hésite pas à les trouver toutes pareilles. Les autres, au contraire, mieux doués sous le rapport du tact d'observation, et qui n'est pas

Before leaving Professor Van der Hoeven's excellent memoir, it should be mentioned that he has examined the vocabulary put down by an English missionary, who was on board the *Amsterdam* with the Caroline Islanders, and which Dr. Swaving sent to the late Professor Vrolik, and compared it with that of Arago in the work above cited. The result is the discovery of such an agreement between the two as to take away all doubt from the mind of Dr. Van der Hoeven, and to assure him that the natives rescued in the canoe were derived from one or more of the Caroline Islands.

It is now proposed to add a short commentary, with a view to attempt to explain and illustrate these rare skulls a little more fully.

1. It must be observed that the whole of the skulls, which the writer has had an opportunity of examining, *agree* in a remarkable manner. They not only agree, but they present such a peculiar conformation as to prevent their being confounded with any other series of crania generally known.

These skulls are distinguished by unusual dolichocephalism, or *great length* and *narrowness*, to which is conjoined *great height*. Professor Van der Hoeven's measurements afford a length of from 171 mm. to 191 mm., or a mean of 182 mm.; a mean breadth of 126 mm., and a mean height of 143 mm. These dimensions yield the uncommon proportions of breadth to length, regarded as 100, (according to our method of measurements, J), 68, *i.e.* Broca's *Indice Céphalique*; and height to the same (our K.) 78. These ratios in twelve English skulls of men are respectively J 77, K 73; in eleven English skulls of women J 76, K 73; in twelve skulls of Chinese men J 77, K 78; in four skulls of Chinese women J 78, K 79; in the whole sixteen skulls of Chinese men and women J 76, K 78. This is adequate evidence of the remarkable general form of the nine crania of the presumed Caroline Islanders, and of its total diversity from that of English and Chinese skulls. In the description of these skulls, Professor Van der Hoeven has observed, besides their general length and narrowness, the prominent ridge which runs down the middle of the frontal bone, and also the great length of the sagittal suture, and of the parietals. This ridge is continued slightly along the line of the sagittal suture, and being accompanied with an unusual lowness of the parietal tubers, these crania are greatly approximated to those *synostotic* skulls, which have obtained the denomination of *scaphocephali*. In fact, the writer has been inclined to regard them as *natural scaphocephali*, and they

départi à tout le monde, sont frappés par des dissemblances qui avait échappé aux premiers et voient des types différents là où les précédents avaient cru voir des types identiques. De là cette confusion répandue de toutes côtés." —P. 104.

have probably a stronger claim to be considered such than the skulls of Esquimaux, before pointed to by Professor H. Welcker.*

II. Allowing that these erania agree among themselves, whilst they differ in a singular manner from those of other well-known races, and there need be no hesitation in making these statements, it may next be asked, *are there any skulls of less known people which exhibit a similar conformation?* This question may be answered in the affirmative. In the extensive collection of erania formed by the writer, his attention was long since arrested by a series of skulls, all of which are derived from the same region of the Pacific Ocean as these of Caroline Islanders; which series stands out pretty distinctly from the rest of the skulls of human races hitherto known and described. Their peculiar features have already been alluded to. They are unusually long, unusually narrow, and, at the same time, very high, or tall. Taken proportionately, those of the Caroline Islanders do not present the features in so exaggerated a degree as others of the series. The frontal tuberosities are less prominent than usual, and the parietal tubers have a still greater depression. The parietal bones are long, and sometimes elevated at the sagittal suture, so as to approach in form the *carina* of scaphocephalism, which ridge, in some instances, as already noticed, may also be discriminated along the frontal bone. They are distinguished by great fullness and length of the occipital region, and sometimes considerable prominence of the zygomatic arches. Although prognathism occurs among them sometimes to an exaggerated degree; yet, at times, as in the Caroline Islanders, it is absent, or not remarkable.

It may be well to state explicitly, that the above is somewhat an ideal picture, intended to mark the peculiarities of this series of erania in a distinct manner; individual instances nevertheless occurring with all these features, even in an extreme form. In nature it is sometimes found that the skulls of the people to whom this peculiar type appertains, and to which we have applied the distinctive term high-narrow skulls, or *hypsi-stenocephalic*, exhibit it in various degrees; and, in some individual cases, the distinctive features are in a great measure wanting. But this is quite in accordance with the usual diversities of nature.

These hypsi-stenocephalic crania are sometimes seen in an extreme form in the skulls of *Loyalty Islanders*, as in No. 810, No. 811, and especially No. 816, the skull of "Biat", from Lifu, in the writer's collection. The length of this latter is 7·6 inches, or 192 mm., its breadth 5 inches, or 127 mm., and its height 5·8 inches, or 147 mm., which, expressed proportionally, afford E 100, J 65, K 76. They are also seen

* *Untersuchungen über Wachsthum und Bau des Menschlichen Schädels*, 4to, 1862, S. 118.

in *New Hebrideans*, No. 575, from the Island of Erramauga ; No. 815, from the Island of Tana ; No. 817 and No. 819, from the Island of Fate, or Sandwich Island, all strongly marked examples ; and such also is No. 820, from the Island of Apee. And they likewise occur among *New Caledonians*, as in No. 812, from the Isle of Pines ; and No. 813, the skull of "Joey", from the Isle of Yengen.* As far as can be judged from two specimens of the skulls of women from the *Feejee Islands*, Nos. 233-4, they also seem to appertain to this hypsi-stenocephalic group. Dr. Pickering made the remark, "The Feejeean skulls brought home by the expedition will not readily be mistaken for Malayan ; they bear rather the negro outline ; but they are much compressed, and differ materially from all other skulls that I have seen".† This passage appears fully to confirm our view.

It must remain for future investigators to determine the degree to which this peculiar type prevails in these groups of islands. As far as can be at present ascertained, it is general, yet marked with different shades of intensity in different cases. That it is not universal the instance of No. 1159, a New Caledonian skull, derived from Dead Man's Peak, which is at the entrance of the River Kanala, on the east coast, shows. This cranium does not present the extremely long, narrow, high form ; but, as it has been artificially deformed, whether intentionally or not, by an extensive parieto-occipital flattening on the right side, it is of no weight in the argument.‡

* In the first volume of the *Bulletins de la Société d'Anthropologie*, there are some valuable descriptions of the skulls of New Caledonians, by M. de Rochas (see also *La Nouvelle Calédonie et ses Habitants*, par le Dr. Victor de Rochas, 1862) and M. Bougarel, which are illustrated by a series of seven plates, representing the crania in five different aspects. M. Rochas, in his table of measurements, introduces a skull from the Isle of Pines, and another from the New Hebrides, both of which are of the extreme length of 200 mm., or 7·9 inches. M. Bougarel points out clearly the specific forms of the New Caledonian skulls, and shows how these evidently differ from those of Polynesian Islanders.

† *The Races of Man*, 1848, 4to, p. 145. U.S. Exploring Expedition.

‡ The history, descriptions, and measurements of these crania, will be included and given at some length, in a work now in a state of great preparation for the press—*Thesaurus Craniorum*, Catalogue of the Skulls of the various Races of Man, in the Collection of Joseph Barnard Davis, M.D.

It may not be quite out of place here to mention, that some of the crania to which we have referred manifest an extremely savage form, or, more properly, an extreme of that form to which we are disposed to apply the terms savage and ferocious. No. 818, a skull of a young man from Fate or Sandwich Island, is the most prognathous and most pithecooid cranium in the whole collection. The enormous and wide jaws, forming the segment of a large ellipse, filled with a perfect set of very robust but fine teeth, almost necessarily carry back the thoughts to anthropophagism. The large, very

III. It becomes a question for craniologists to determine whether these skulls, to which the name hypsi-stenocephalic has been applied, may not deserve to be ranked as a chief class, somewhat on a level with the three great classes of skulls deduced by Blumenbach from his vertical method, viz., the Caucasian, Mongolian and Ethiopic; or the two great divisions of Retzius, the dolichocephalic and brachycephalic. The latter terms mark extreme forms, just as black and white in colour; therefore, the proposed class cannot be quite so distinctly defined. Like red and blue in colours, they are in some measure intermediate, but not the less capable of being discriminated. They certainly do differ from all the other great divisions of skulls, although they approach nearest to those of some tribes of African negroes. Camper pointed out the dolichocephalism of these latter, and, indeed, he also spoke of the great breadth of the skulls of Asiatics, and the middle position in this respect of those of Europeans. The observation with regard to negroes was supported by Soemmerring,* and confirmed in the great work of Van der Hoeven.† In some respects, no doubt, these crania of Pacific islanders *approach* those of African negroes, but they agree with them in a very partial manner indeed. The great *height* of the *calvarium*, combined with its narrowness, is not seen in African skulls; and, instead of the flat nose, the result of the broad plane form of the nasal bones, and, equally so, of that of the nasal processes of the superior maxillaries, in the Pacific islanders' skulls the nasal bones are narrow and elevated at their juncture into an acute angle, whilst the before-mentioned nasal processes are entirely conformable, and inclined to each other at an equally acute angle.

We do not pretend to define what ought to be the exact value of hypsi-stenocephalic skulls in any arrangement of human crania, but have no hesitation in saying that they deserve a distinct place, apart from all others.

IV. Further inquiry will have to be directed to these subjects before it can be determined with any degree of confidence to what different peoples this peculiar cranial conformation belongs. It seems every way probable, that the Archipelagos of the New Hebrides and

projecting face, above which an extremely sloping narrow forehead does not stand up, but strongly recedes backwards, give the perfect image of the muzzle of an ape. The calvarium of this skull, when seen in profile, very closely resembles, except in the irregularity of outline occasioned by the compressing bandages, that of an ancient Peruvian; such, for example, as that of Morton's, pl. 3, or that of the Clickatat, pl. 43 (*Crania Americana*).

* *Ueber die Körperliche Verschiedenheit des Negers vom Europäer*, 1785, S. 19.

† *Bijdragen tot de Natuurlijke Geschiedenis van den Negerstam*, 4to, 1842, bl. 23.

of New Caledonia may be regarded as the focus of hypsi-stenocephalism ; from whence it radiates eastwards to the Loyalty Islands and probably to the Feejees, and westwards and northwards to the Caroline Islands ; with how many intermediate points it is at present, from the very imperfect knowledge we possess of the craniology of the Pacific, which might more properly be called deplorable ignorance, impossible to tell.

There is, however, evidence to show that it is not universally, and, as it were, indiscriminately, distributed throughout the numerous *adjoining* or *approximate* archipelagos of this great region of the Western Pacific. It is most probable that it is limited to particular islands, or groups of islands, within the bounds to which it does extend. The Salomon Islands constitute a large archipelago to the north-west of the New Hebrides and New Caledonia. The writer's collection includes five skulls of Salomon Islanders, and there are others buried in the cellars of the British Museum. These agree in their general forms ; they are not high, they are even particularly low in the frontal region, and have a peculiar angular, bony, savage aspect, with prominent parietal tubers. On reverting to the figures of the busts of Caroline Islanders, and of Salomon Islanders also, in the splendid atlas of Dumontier, it will be seen, not only that the latter agree closely with the account now given of the skulls of Salomon Islanders, but, likewise, that the three busts of Caroline Islanders do not exhibit any material differences from these skulls ; on the contrary, they really belong to the same species. Hence, the inference is, that there are different cranial configurations in the islands of the Caroline archipelago ; that of some islands may be called hypsi-stenocephalic, whilst that of other islands presents a striking conformity with that of Salomon Islanders. At all events, the series of crania described by Prof. Van der Hoeven, and which there seems good grounds for regarding as authentic, differ essentially from the natives of the Lougonor or Nongonor group of the Caroline Islands. And this is fully confirmed by the account of the busts given by M. Blanchard, when he compares them with Polynesians. His words are :—"Ce sont des physiognomies plus intelligentes que celles des Polynésians de l'est, *des têtes plus rondes*, des fronts plus développés," p. 100. The greater roundness of the heads of these natives of Lougonor, or Nougonor, than those of Polynesians is in conformity with the figures of the busts, and also in agreement with our skulls of Salomon Islanders ; but the statement is totally at variance with the crania described by Professor Van der Hoeven. This may be considered to confirm, almost to prove, the essential diversity of the races peopling the different islands comprehended under the name of the Caroline Archipelago.

V. That the Islanders brought by the canoe to Batavia could not belong to any race of people to which the term Papuan can be applied, is undoubted; still, there remain two questions which ought not to be passed over in silence. One is, whether the races of Islanders with hypsi-stenocephalic skulls are any of them Papuans; the other is, whether this term, in its ordinary acceptation, is confined to those species of men, who are distinguished by having the hair not growing equally spread over the scalp, but, in tufts, with bare spots between. There are many distinct races, as distinct as species, which agree in presenting tufted hair. The Hottentots, the Bushmen, and the Oriental Negroes of the Pacific Islands, are as distinct from each other as any known races of man, yet they are all said to agree in having this curious tufted hair. The New Caledonians, the New Hebrideans, and the Feejee Islanders are Papuans, or agree in the practice of teasing out the hair into a kind of mop, some of them, as the natives of Aneiteum and Tana, wearing it in very slender ringlets, each of which is wound round at great pains, with a vegetable fibre, so that the whole is made to resemble a thrum mop, or one form of wig worn by the ancient Egyptians. There is no doubt that the natural structure and growth of the hair in some of these Islanders has suggested this strange fashion, and is especially adapted to the manipulation to which it is subjected. It is generally exceedingly fine and slender, and of that structure which Mr. P. A. Browne denominated *eccentrically elliptical*. The consequence of this form of its section is, that it naturally twists into cork-screw locks. These the natives avail themselves of, and wind round them a thin vegetable fibre, which is the fine rind of a plant, to within an inch of the extremity; by which means the separation of the locks is ensured, and their growth to an indefinite length. Others, also designated mop-headed, by means of long skewers and wooden combs with five or six long teeth, which they wear in their hair, tease out their crisp locks into an immense bush. It is true that no straight-haired people, *Leiotrici*, could follow either of these fashions. Those having any kind of crisp or woolly hair, which grows sufficiently freely, might adopt either custom, irrespective of its springing in tufts. And to judge from what we can learn concerning these Papuans, it appears that races with essentially different kinds of hair, do tease it out in this manner, and have been called Papuans. Neither Pickering nor Williams, Erskine, nor Seemann says that the Feejeeans have hair growing in tufts, yet they are among the most famous people for mop-heads, and for hair-dressing. M. de Rochas says nothing of tufted hair among the New Caledonians, who have the high narrow skulls. Like most other travellers, he is brief on the subject of hair, describing it most at length in his first account of New Caledonian Anthropology

(*Gazette Médicale*, 1860, p. 185), in these few words, "les cheveux noirs, laineux et crépus".* The Papuans of New Guinea are considered to have tufted hair, and the hair of the Negritos of the Philippine Islands has been said to grow in tufts.† Mr. Earle assures us that a slight mixture of the full-blooded Papuan with "the brown race", removes the peculiarity of tufted hair, which he attributes to the Papuans as a race. (*The Native Races of the Indian Archipelago*, p. 3.) Hence it may be concluded that the high-narrow skull is not essentially associated with the mop-headed races, and that it is equally independent

* A considerable number of specimens of the hair of New Caledonians, collected by Lieut. M. E. Didot of Tahiti, are now in the possession of the writer, and they seem to prove that, both in colour, texture, and mode of growth, there is much diversity. In general it may be said to be, in common parlance, black; but it varies from a deep brown or black, between Nos. 41 and 48 of Broca's tableau, and passes through many shades to a yellowish flaxen colour, much the same as No. 45 of Broca; this latter being the hair of a girl of three years of age, distinguished also as "peau jaune." It is mostly fine in texture, generally crisp, sometimes very crisp. Its character is that of short hair, never exhibiting the long flowing locks of Europeans. It is sometimes straight, sometimes a little flexuous, but more frequently bushy and in confused masses. A few specimens present the small, short, crisp, corkserew tufts; but whether these grow separately or not there is no indication. The hair both of the head and the beard of "Jack", a New Caledonian chief of the Dumbia tribe, is black, Broca's No. 48. In the photograph of this head, which is preserved at Brest, politely transmitted by Dr. A. Le Roy de Méricourt, the hair is seen to be short, curly, and bushy, but not growing in separate tufts. The beautiful calotype portrait of "Williamu", a native of Aneiteum, New Hebrides, presented by the Rev. John Inglis, who brought him to this country, exhibits short, crisp, curly, thick, not discrete hair. Mr. Inglis designated him a Papuan. The specimen of his hair sent by this gentleman to the writer is fine, of brown colour, not very dark (like No. 41 of Broca's table), not very crisp, curly, so interlaced that it would be very difficult to comb out, but easily matted or teased out into a mop-head.

† The small skull of a Negrito from the island of Panay, sent the writer by Mr. Nicholas Loney, is remarkable for still retaining a good portion of its hair. This consists of a number of very short, small, grey curls scattered over the head not very thickly, but, as far as can be ascertained, not growing in tufts, not woolly, nor spirally twisted. A specimen of hair of a Negrito woman, also from Panay, is of a dark brown colour, deeper than No. 41 of Broca's tableau. It is fine, and growing freely, bushy, wavy in texture, and has pretty surely grown equally spread over the head. The fine photograph of a pure Aëta man taken at Manilla, sent by Mr. W. W. Wood of that city, exhibits a short, curly, crisp hair, much resembling the woolly locks of the Negro, but covering the whole head alike. That of a Negrito or Aëta woman is exactly of the same character. Black, woolly, crisp, and frizzled, are epithets applied to the hair of the Negritos by Mallat, Giro-niere, and Earle; but I do not see that the two first describe it as being in separate tufts.

of the fact of the hair growing in tufts, or otherwise. Both positions may be said to receive confirmation by the crania of Papuans of New Guinea, and of Alfours in our collection. Neither the former, Nos. 1400, 1401, and 1402 ; nor the latter, Nos. 1403, 1404, and 1405, exhibit any tendency to the peculiar form here designated hypsi-stenocephalic. Hence, it may be scarcely needful to add, that some Papuan races have the high-narrow skull ; and that the name Papuan is not confined solely to races with tufted hair ; so that hypsi-stenocephalism has no connection either with Papuanism, or with tufted hair.

VI. In conclusion, it may be remarked that these high-narrow, or hypsi-stenocephalic skulls do not seem usually to be distinguishable for want of capacity. That some of them are even large may be affirmed safely, from the measurements of those named, viz., Nos. 812, 816, 817, from New Caledonia and the New Hebrides, which have an average internal capacity of 80 ounces avoirdupois of sand, equal to 96 cubic inches. These are exceptional in size, but 96 cubic inches is exactly the mean of the English skull, as deduced by Morton in his great table. Such an observation and the results of the measurements of the skulls of the ancient Britons described in the *Crania Britannica*, lead to the idea that some modification may be required to be made in the doctrine that aboriginal races are distinguished from Europeans by having lesser brains. It certainly would be impossible to pack the brain of these New Hebrideans in the skull of an European, because of the great difference of shape. It would not fit the cavity, and must, indeed, be reduced to a state of disorganisation, before it could be made to enter into this cavity, although of equal size. Have we not in this fact a key to the psychological peculiarities which discriminate the two races? Is it not the different conformation of brain, running through all its organisation, that lies at the basis of the great essential diversities of the two peoples ; one of which is what is called civilisable, or ceaselessly and almost endlessly progressive ; the other savage and stationary—if movable, moved only to destruction ?

J. B. D.

